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which have been located on both the north and south sides, though those on the north side have not yet been fully developed.

The region around Virginia City, Nev., is another famous mining locality. In this district is included the Comstock lode. It was there that the milling of silver ore was first practiced in this country. At one time eighty mills were kept busy disposing of the output of the Comstock mines. At present the mining work is confined almost entirely to the C. and C. shaft, the Ward shaft and the Chollar outcrops, although there has been considerable talk of renewing operations on a large scale and a large pumping plant has recently been installed.

Two companies are at work in the C. and C. shaft, one of which employs about a hundred men and mines about five hundred tons of ore a week which runs from \$20 to \$40 a ton. The Chollar outcrops produce nearly two hundred tons a day, but the ore is of poor quality and hardly pays expenses. Considerable mining is being done in the vicinity of Virginia City outside of the Comstock mines, mostly in the neighborhood of Silver City and toward Gold Hill.

The Kelsey copper fields, near Lake Osoyoos, in Washington, is a district whose importance as a mining field is as yet somewhat problematical, but the indications are most promising. The area of the property is about three hundred acres. Borings of 100 feet in depth have shown zones of copper bearing sediment averaging 4,000 feet in length and 2,000 in width. The average assay has not yet been fully determined. Practically the same conditions were found at the depth of 100 feet as exist on the surface, the quantity of copper being constant. Instances of concentration in a minor degree were found giving ground for hope of concentration on a larger scale at greater depths.

Washington's Coal.
The coal mines of Washington are growing in value, although the California market for their product has been somewhat impaired by recent discoveries of fuel oil in that State. The coal fields are in the central and western parts of the State and are five in number; the north Puget Sound fields, including mines in Skagit and Whatcom counties, the south Puget Sound fields in the counties of King and Pierce, the Puget Sound basin east of Seattle, the Roslyn field in Kittitas county and the southwestern field in Lewis and Cowlitz counties. The grades run from lignite to bituminous and coking coal, some natural coke and anthracite being found.

The coal bearing public lands of New Mexico were withdrawn from entry about two years ago pending an examination as to their value by the United States Geological Survey. In the last few months extensive coal fields in the vicinity of Raton have been examined and the coal found to be of high grade bituminous and coking quality. The town of Raton itself is built upon a shale whose dark color has led many to look for coal in it. This shale, known as the Pierre shale, contains no coal, however.

Above the shale is a white sandstone, the Trinidad sandstone, which sometimes contains thin layers of carbonaceous shale and coal. The sandstone underlies the real carbonaceous beds. Near the mountains these are from 150 to 250 feet thick. The carbonaceous formation, however, was subject to a long period of erosion and consequently in some localities is entirely lacking, allowing much later geologic strata to rest directly upon the Trinidad sandstone.

The Raton coal formation is overlaid in many places with a conglomerate sandstone, which merges above into shales and finer sandstone containing beds of coal almost as valuable as the lower Raton beds. These upper sandstones and shales vary from a few feet to hundreds of feet in thickness.

In some localities, especially along the

Red River Valley, owing to volcanic activity, igneous rock has been intruded into the coal beds, transforming the coal into coke and graphite. A detailed report on the Raton fields is expected early in the spring.

Asphalt in Oklahoma.

In Oklahoma the most extensive asphalt deposits in the United States have been found, practically all of it being rock asphalt, that is, rock impregnated with asphalt rather than asphalt in the viscous state in which it is found in Trinidad. Most of the deposits are in the southern part of the State. It is found along fault lines; there has been a slipping of the earth's crust, formations on one side of the fissure going down hundreds of feet in relation to the continuation of the same formations on the other side, and at some

unknown depth the fissure has penetrated beds of heavy petroleum which impregnated the neighboring rocks to the depth of from two to fifty feet, forming the rock asphalt. Limestone, sand or shale asphalt was formed according to the nature of the rock bordering the deposit.

Many of these deposits have been worked and several mills built to take care of the product; there is a mill at Glenosite, one at the Brunswick mine near Dougherty and one at Ardmore. The rock has been used for paving in Kansas City, Fort Worth, Ardmore and Shawnee.

The facts that transportation of the rock involves considerable expense and that methods of refining the product on the ground have proved unsatisfactory have so far prevented any extensive utilization of the Oklahoma asphalt, but the

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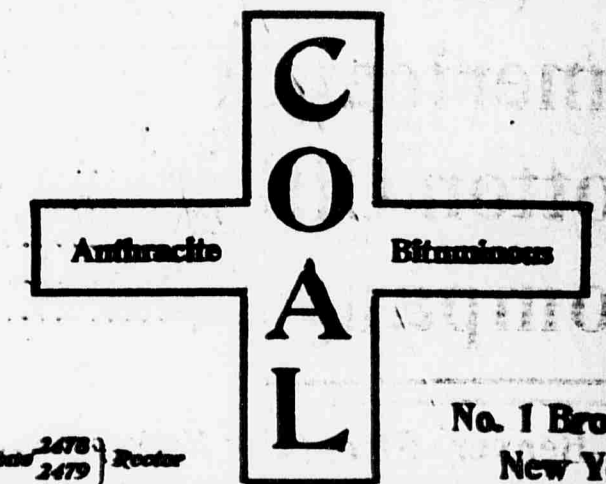
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